

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF THE CLAIMS

1. (currently amended) A vaporizer for vaporizing ~~a fluid~~an atomized, antimicrobial liquid, to form an antimicrobial vapor, the vaporizer comprising:

a source of electromagnetic radiation; ~~and~~

~~a heating apparatus for producing heat to vaporize an antimicrobial fluid passing therethrough, including:~~

~~(a) an electrically non-conductive material, and~~

~~(b) an electromagnetically responsive material.~~

a heating chamber having a passage formed therethrough, said heating chamber having an inlet for receiving the atomized antimicrobial liquid into the passage, and an outlet for releasing the antimicrobial vapor from the passage to supply the antimicrobial vapor to a defined region, wherein said heating chamber is comprised of a first electrically non-conductive material and a first electromagnetically responsive material; and

an insert located within the passage of the heating chamber, said insert comprised of at least one of:

(1) a metal, and

(2) a second electrically non-conductive material and a second electromagnetically responsive material,

wherein said heating chamber and said insert both contribute to vaporization of the atomized, antimicrobial liquid to form the antimicrobial vapor.

2. (withdrawn) A vaporizer as defined by claim 1, wherein said electrically non-conductive material is selected from the group consisting of: a polymer, a ceramic and a glass.

3. (withdrawn) A vaporizer as defined by claim 2, wherein said polymer is selected from the group consisting of: a thermoplastic polymer and a thermosetting polymer.

4. (withdrawn) A vaporizer as defined by claim 3, wherein said thermoplastic polymer is selected from the group consisting of:

a nylon; Amodel® (PPI, polyphthalamide); Aurum® (polyimide); Ryton®/Fortron® (PPS, polyphenylenesulphide); Fluoropolymers (PFA, FEP, Tefzel® ETFE, Halar® ECTFE, Kynar® PVDF); Teflon® PTFE; Stanyl® (4.6 polyamide, 4.6 Nylon); Torlon® (polyamide-imide); Ultem® (polyetherimide, PEI); and Victrex® PEEK (polyaryletherketone, polyetheretherketone).

5. (withdrawn) A vaporizer as defined by claim 3, wherein said thermosetting polymer is selected from the group consisting of: an epoxy and a urethane.

6. (withdrawn) A vaporizer as defined by claim 2, wherein said ceramic is a metal-oxide material.

7. (withdrawn) A vaporizer as defined by claim 6, wherein said ceramic is selected from the group consisting of: silica, alumina, and magnesia.

8. (currently amended) A vaporizer as defined in claim 1, wherein said first and second electromagnetically responsive material is selected from the group consisting of: a metal, a metal alloy, a metal coated material, carbon, graphite, stainless steel, a metal alloy solder, a ferromagnetic material, a ferrimagnetic material, a ferroelectric material, a ferrielectric material, and combinations thereof.

9. (original) A vaporizer as defined in claim 8, wherein said metal is selected from the group consisting of: nickel, copper, zinc, silver, stainless steel, tungsten, nichrome, and combinations thereof.

10. (currently amended) A vaporizer as defined in claim 1, wherein at least one of said first and second electromagnetically responsive material is a ferromagnetic material.

11. (currently amended) A vaporizer as defined in claim 1, wherein at least one of said first and second electromagnetically responsive material is a ferrimagnetic material.

12. (currently amended) A vaporizer as defined in claim 1, wherein at least one of said first and second electromagnetically responsive material is a ferroelectric material.

13. (currently amended) A vaporizer as defined in claim 1, wherein at least one of said first and second electrically non-conductive material forms an electrically non-conductive matrix, ~~said~~ at least one of said first and second electromagnetically responsive material is embedded within the electrically non-conductive matrix.

14. (currently amended) A vaporizer as defined by claim 13, wherein at least one of said first and second electromagnetically responsive material is in the form of a particulate selected from the group consisting of: fibers, flakes, spheres, whiskers, grains, a coated particulate and combinations thereof.

15. (withdrawn) A vaporizer as defined in claim 1, wherein said electromagnetically responsive material forms a layer on a surface of said electrically non-conductive material.

16. (withdrawn) A vaporizer as defined in claim 15, wherein electromagnetically responsive material is embedded in said electrically non-conductive material.

17. (withdrawn) A vaporizer as defined in claim 15, wherein said electromagnetically responsive material is deposited on said electrically non-conductive material by at least one of: thermal spraying, electrodeposition, autocatalytic deposition, and arc spraying.

18. (withdrawn) A vaporizer as defined in claim 1, wherein said electrically non-conductive material forms a layer to provide a protective coating, said protective coating isolating said electromagnetically responsive material from an antimicrobial fluid.

19. (withdrawn) A vaporizer as defined in claim 18, wherein said electromagnetically responsive material is embedded in an electrically non-conductive material.

20. (withdrawn) A vaporizer as defined in claim 18, wherein said electromagnetically responsive material is deposited to form said layer by at least one of: thermal spraying, electrodeposition, autocatalytic deposition, and arc spraying.

21. (withdrawn) A vaporizer as defined in claim 1, wherein said source of electromagnetic radiation is a microwave generator, said microwave generator generating microwaves that cause heating of said electromagnetically responsive material.

22. (withdrawn) A vaporizer as defined in claim 21, wherein said electromagnetically responsive material is selected from the group consisting of: a ferromagnetic material, a ferrimagnetic material, a ferroelectric material and a ferrielectric material.

23. (withdrawn) A vaporizer as defined in claim 1, wherein said source of electromagnetic radiation produces an alternating current.

24. (withdrawn) A vaporizer as defined in claim 23, wherein said alternating current has at least a first frequency and a second frequency, wherein said electromagnetic radiation penetrates said heating apparatus at respective first and second depths.

25. (withdrawn) A vaporizer according to claim 1, wherein said heating apparatus includes:

a generally cylindrical tube, and

a screw-shaped insert dimensioned to be received within said generally cylindrical tube, said screw-shaped insert including a spiral passageway,

wherein at least one of said generally cylindrical tube and said screw-shaped insert are comprised of said electrically non-conductive material and said electromagnetically responsive material.

26. (new) A vaporizer according to claim 1, wherein said insert is a screw-shaped insert, said passage following a spiral path through said screw-shaped insert.